WAIORA
MANUHEREKIA

# Marsh Wetlands

**Marshes are the most common type of wetland in the Manuherekia Catchment, typically with shallow, often seasonal surface water and a mineral substrate with medium to high nutrient levels.**

Marsh wetlands are often found at the edges of other water bodies like rivers, streams, and lakes. They go through seasonal cycles of dryness and wetness, receiving water primarily from groundwater and surface water. Fluctuating water levels are a defining feature of marshes. These wetlands play an important role in reducing flood risk by absorbing heavy rainwater and slowly releasing it. However, marsh wetlands have been widely drained for agricultural development, as they are often located on productive river flats. Historically, inland marshes were dominated by copper tussock and sedges, but now they often support only rushes and sedges.

## How to identify a marsh wetland on your property

Marshes in the Manuherekia Catchment are likely to have standing water which may overtop a pair of gumboots in places at certain times of the year and be relatively dry at other times.

You can often identify a marsh wetland through its landscape setting. For example, is the wetland located beside a waterway or at the edge of a different wetland? Marsh wetlands are also commonly found in the bottom of headwater gullies, with swamps further downstream.

Vegetation can include grasses, herbs, sedges and rushes. Exotic wetland grasses may be present in areas with deeper and flowing water. Native sedges such as rautahi may also be present. Rautahi dies back over winter which can help to identify this species. Trees and shrubs, including crack willow (salix × fragilis) and native shrubs may also be present. Valley floor marshes may form a matrix around small swamps that are permanently wet.

The soil substrate of marsh wetlands is mainly mineral. Peat (an accumulation of partially decayed vegetation or organic matter which is often dark red–brown in colour with partially decayed moss and plants) will be absent. A mineral substrate can vary in colour but will typically have a gritty, silty texture when rubbed between your finger and thumb.

# Characteristics of a healthy marsh wetland

- Wetland is hydrologically intact, for example, no drains are present.
- Exotic woody weeds (crack willow, gorse, and broom) are largely absent from the wetland. There may be scattered plants, but not extensive areas of gorse and broom or dense, large crack willow.
- The marsh is dominated by native plants. An indicator of health could be that the vegetation is dominated by sedges and rushes, and/or has scattered shrubs of Coprosma or Olearia. Exotic grasses will likely be mixed in; however, if sedges and rushes are present, it is likely that some, if not all, of these are native.
- Stock are excluded from the wetland area and/or there is little evidence of stock damage (e.g. pugging or browsing).

**Even if a marsh wetland does not have any of the 'healthy' characteristics, marsh wetlands have ecological value and can provide a number of benefits to the wider catchment. Marsh wetlands help to mitigate flood risk and provide a buffer to adjacent waterways, helping to filter nutrients and improve water quality. Rank grassland surrounding the wetland may provide habitat for lizards even if it is dominated by exotic grasses. Exotic trees and shrubs may provide habitat for birds, particularly if there are few examples in the surrounding area.**

# Steps to manage and enhance marsh wetlands

**Remove and exclude livestock:** Retire areas from grazing, and fence to exclude livestock. Any fencing should include the main wetland area, ideally encompassing any waterways near the wetland.

**Control invasive weeds:** Controlling woody weeds in and around marsh wetlands is a key priority for managing and enhancing wetland habitats.

- Crack willow is common within marsh wetlands and spreads readily, forming large, dominant treelands which can alter the hydrology of the wetland. Check out page 7 of our **Management Plan** for information on methods to control willows.
- Other woody weeds such as gorse, broom, briar rose and elder are often present around wetlands, particularly at the margins and, in some cases, within drier parts of the wetland.
- Exotic grasses and herbs are common in marsh wetlands.
- Ecologically appropriate planting: Once livestock are excluded, planting can be undertaken immediately.

**Control rodents and mustelids:** Predators of native animals, including birds and lizards, may be present around wetland margins. Large rodent populations can also attract other predators, such as feral cats.

**Limit recreational access and maintain tracks:** Marsh soils are wet, soft and vulnerable to compaction. Recreational off-road vehicles (e.g. 4x4s, quad and dirt bikes), and even irresponsible trampers (walking off track), can cause severe and irreparable damage to wetland habitats. Both trampers and vehicles can also accidentally introduce and spread exotic plant seeds. By limiting or restricting access and maintaining established tracks, these impacts can be greatly reduced.

**Avoid drainage and habitat modification:** Drainage of wetlands for development and agriculture has greatly reduced their extent in Otago. Where marshes have been 'reclaimed' through earthworks (bunds and dams), these can be broken down when the marsh is dry, or left to collapse naturally. Historic drainage channels in or around these habitats should not be maintained.

# Planting lists and guidance

## Restoration planting

Restoration planting can help to maintain and enhance the ecological values of marsh wetlands.

Planting directly into the marsh can occur if the wetland is dominated by exotic species or if large gaps have opened up following the removal of weeds such as crack willow. Care needs to be taken not to plant into areas where native species are present. Wetland areas and the margins of ponds should be planted in either September or October, once any standing water has drained.

## Terrestrial planting

Terrestrial planting of natives around the perimeter of the wetland will create a buffer that helps protect the wetland habitat.

The locations where plants will thrive in a restoration planting depend on the environmental tolerances of individual species. The planting list suggests placing species that prefer wetter conditions on lower banks and at the edges of the wetland. Species that are more tolerant of dry and exposed conditions are recommended for mid and upper banks, or further from the wetland area.

# Notable fauna and flora

- Kōtuku/white heron wade in the shallow waters of marsh wetlands to forage outside their breeding season. Dense areas of sedges and rushes within the marsh wetland can also provide roosting, foraging and nesting habitat for matuku-hūrepo/Australasian bittern and kotoreke/marsh crake.
- Some species of native skinks, such as the Otago green and tussock skink, can occur on marshes where lizard refuges (such as dense ground cover vegetation and rock piles) are not flooded.
- Buchanan's sedge can occasionally be found in marshes.
- Threatened and At Risk native fish may be found in waterways and channels associated with marsh wetlands. Roundhead galaxias are endemic to Otago and are commonly found in weedy drains and cobble streams. Upland bullies, although not threatened, are a notable and common freshwater fish species found in a wide range of slow-flowing habitats.

# Threats

## Threats to marsh wetlands in the Manuherekia include:

- Drainage
- Weed invasion
- Soil compaction/pugging.

The hydrology of a marsh wetland can be altered by man-made drains. It can also change over time due to the establishment of woody weeds such as crack willow. Stock can damage wetlands through pugging and compacting the wetland substrate. This disturbance can create gaps in existing vegetation, allowing weeds to colonise and spread. Stock presence also increases the nutrient load in wetlands. Occasionally, stock will browse native wetland plants; cattle, for example, like eating sedges in spring and early summer when they are more tender. Pest animals and predators can also have a negative impact on native fauna.

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